Capital Structure Decisions of European and U.S. Listed Firms: Is there a Unique Financial Theory?

Zélia Serrasqueiro*[1], Márcia Rogão[2], Paulo Macãs Nunes[3]

*[1]Management and Economics Department of Beira Inteiror University, Portugal
[2] Márcia Rogão, Instituto Politécnico Bragança, Portugal
[3] Management and Economics Department of Beira Inteiror University, Portugal

*[1]zelia@ubi.pt; [2]mrogao@ipb.pt; [3]macas@ubi.pt

Abstract

This study seeks to verify if financial theories are mutually exclusive in explaining the capital structure decisions of European and U.S. listed firms. To achieve the main objective of this study, for the period between 1996 and 2007, a research sample of 659 listed firms made up as follows is taken into consideration: 92 German, 78 Spanish, 95 French, 91 Italian, 76 Dutch, 45 Portuguese, 91 British and 91 U.S. firms. As method of estimation, we use panel data models, namely the GMM System (1998) and LSDVC (2005) dynamic estimators. The results obtained show that for all the listed firms in Europe and the U.S., the existence of a negative relationship between profitability and debt is in accordance with the assumptions of Pecking Order Theory. Furthermore, the negative relationship between liquidity and debt also suggests that European and U.S. listed firms follow the principles of Pecking Order Theory in their capital structure decisions. However, the results also show that European and U.S. listed firms follow the Dynamic Trade-Off Theory seeking to adjust, albeit with different speeds, the level of current debt towards the target debt ratio.

Keywords

Capital Structure Decisions; European Listed Firms; Panel Data Models; U.S. Listed Firms

Introduction

The debate on the subject of firms' capital structure originated in the work of Modigliani and Miller (MM, 1958), is based on a set of assumptions underlying the context of a perfect capital market, concluded on the irrelevance of capital structure for the firm's market value. The work by MM (1958) does not provide a realistic description on how firms finance their activities, but it lets us find the reasons related to the importance of financing for firms.

The assumptions in the work of MM (1958) have been questioned in the vast financial literature, which is embodied in Trade-Off Theory, Agency Theory, Pecking Order Theory, Market Timing Theory, and other theories on capital structure. Frank and Goyal (2008) suggested dividing Trade-Off Theory into two distinct perspectives: the perspective of Static Trade-Off Theory and that of Dynamic Trade-Off Theory. The main difference between the two perspectives lies in the fact that Static Trade-Off Theory put the emphasis of its analysis of the subject of optimal capital structure on a single period of time. According to Dynamic Trade-Off Theory, firms' capital structure decisions are based on a partial adjustment of the current level of debt towards the target debt ratio (Ozkan, 2001; Bhaduri, 2002; Lööf, 2004; Flannery and Ragan, 2006).

According to Pecking Order Theory, in the presence of problems of information asymmetry, the firm's capital structure decisions are made following a hierarchical order in choosing sources of finance. The firm does not seek an optimal capital structure and its current capital structure reflects the financing needs found in previous periods (Myers, 1984; Myers and Majluf, 1984).

Jensen and Meckling (1976) approached the capital structure decisions based on the agency costs. Firms incur two types of agency costs: costs associated with the presence of debt in capital structure, and the costs associated with the external equity investors (Jensen and Meckling, 1976). Initially, the total agency costs decrease, and after certain level of external equity in capital structure, they increase. The total agency costs become minimal at a certain level of external equity. Thus, Agency Theory defends the existence of an optimal capital structure.

In accordance with the approach of Market Timing, the firm's capital structure is the accumulated result of

past attempts to time the stock market by its managers (Baker and Wurgler, 2002). In this context, managers issue shares, when they perceive that the firm's shares are overvalued by the market, and they buy back shares, when they consider the shares are undervalued.

This study, seeking to contribute to knowledge regarding the capital structure puzzle as stated by Myers (1984), intends to analyze the influence of firms' specific factors on capital structure, aiming to determine whether capital structure theories are mutually exclusive in explaining the capital structure decisions of European and U.S. listed firms. In this context, the finance theories considered are: Static Trade-off, Dynamic Trade-Off, Agency, Pecking Order and Market Timing Theories.

To reach the main objective of this study, we consider a research sample of 659 firms that, according to their nationality, are divided as follows: 92 firms located in Germany, 78 in Spain, 95 in France, 91 in Italy, 76 in the Netherlands, 45 in Portugal, 91 in the United Kingdom and 91 in the United States. The data is collected from AMADEUS database, for the period between 1996 and 2007. As method of estimation, we use panel data models, namely the GMM System (1998) and LSDVC (2005) dynamic estimators. The results obtained show, for listed firms in Europe and U.S., the existence of a negative relationship between profitability and debt, and a negative relationship between liquidity and debt. These results suggest that European and U.S. listed firms' capital structure decisions seem to be in accordance with the assumptions of Pecking Order Theory.

In addition, the results suggest that European and U.S. listed firms adjust the current level of debt seeking to reach the target debt ratio; and that those firms adopt a financing behaviour according to the predictions of Dynamic Trade-Off Theory. However, the speeds of adjustment differ among firms from the various countries, reflecting the differences in transaction costs incurred by firms of the different countries. The results of the current study suggest that listed firms in Europe and in U.S. prefer retained earnings than external sources of finance. Furthermore, those firms have different speeds of adjustment which suggest different transaction costs for firms in different countries. Probably, the existence of benefits and costs associated with firms´ transactions in their local markets contributes to explaining the different speeds of adjustment of firms in Europe and U.S.. Therefore, capital structure decisions are explained by not only firm-specific characteristics, but also by economic and institutional factors of the countries where firms operate.

The article is structured as follows, after this introduction in Section 1: Section 2 presents firms' specific factors determining capital structure decisions; Section 3 presents the methodology used in the study; Section 4 presents the results obtained; Section 5 goes on to interpret and discuss the results; and Section 6 concludes the study.

Firms' Specific Factors Determinants of Capital Structure

According to Harris and Raviv (1991), the level of fixed assets, tax savings, growth opportunities and business size are firms' specific factors related positively to the level of debt. Those authors also stated that the firm's specific factors relating to risk, likelihood of bankruptcy, profitability and specific nature of the product are negatively related to the firm's level of debt. Based on a review of previous studies, Frank and Goyal (2008) highlighted size, asset tangibility, growth opportunities and profitability as determinants with a statistically significant impact on the level of debt.

We go on to present firms' specific factors as potential determinants of capital structure in European and U.S. firms, in the framework of Static Trade-off, Dynamic Trade-Off, Agency, Pecking Order and Market Timing theories.

Asset Tangibility

According to Jensen and Meckling (1976), a firm with a high level of tangible assets has the capacity to provide collateral, lessening the risk of failing to meet commitments to creditors. Therefore, in the presence of a large proportion of tangible assets, a high level of debt can be expected, since in the case of firm bankruptcy, tangible assets guarantee creditors that the debt will be repaid (Gaud,Jani, Hoesli and Bender, 2005). Consequently, the agency costs associated with the debt are lower for firms with higher levels of tangible assets.

From the perspective of Agency Theory, Harris and Raviv (1990) based on agency problems between managers and shareholders, suggested that firms with a greater volume of tangible assets should present a higher level of debt, with the aim of disciplining managers' actions. In contrast, Gaud, Jani, Hoesli and Bender (2005) argued that the disciplining role of debt should occur, mostly, in firms with low levels of

tangible assets, given that for firms in this situation, it becomes difficult to monitor their managers' behaviour. It is of note that numerous empirical studies (Rajan and Zingales, 1995; Graham,Lemmon, and Schallheim, 1998; Shyam-Sunder and Myers, 1999; Kremp,Stöes, and Gerdesmeier, 1999; Hovakimian, Opler and Titman, 2001; Baker and Wurgler, 2002; Frank and Goyal, 2003; Korajczyk and Levy, 2003; Gaud,Jani, Hoesli and Bender, 2005; Antoniou,Guney, and Paudyal, 2008) on the determinants of capital structure, conclude that firms with higher levels of tangible assets tend to present higher levels of debt, i.e., those empirical studies show evidence of a positive relationship between asset tangibility and debt. However, Titman and Wessels (1988) obtained inconclusive results on the relationship between tangible assets and debt. Berger and Udell (1994) argued that for firms with a close relationship with creditors, there is possibly less need for tangible assets to be used as collateral. Close relationships of firm with creditors seem to be a way of substituting the collateral required by creditors to firm.

In this study, according to the studies of Titman and Wessels (1988), Rajan and Zingales (1995) and Fama and French (2002), the variable of asset tangibility, considering a determinant of capital structure, will be calculated on the basis of the ratio of tangible fixed assets to total assets (Table A1).

Intangible Assets

Myers (1984) argued that firms with assets unsuitable for use as guarantees (i.e., intangible assets) show less debt than firms possessing a higher level of tangible assets. Firms with high levels of intangible assets have lower levels of debt, because intangible assets are not appropriate as the collaterals demanded by creditors. Therefore, firms with higher levels of intangible assets are expected to resort more to external equity rather than debt, as confirmed by various empirical studies (Titman and Wessels, 1988; Rajan and Zingales, 1995; Gaud,Jani, Hoesli and Bender, 2005).

As in the studies by Titman and Wessels (1998) and Giannetti (2003), in the current study, the variable of intangible assets will be measured by the relationship between intangible fixed assets and total assets (Table A1).

Growth

Static Trade-Off Theory predicts a negative relationship between firm growth and debt. Firms with high level of growth can face problems of underinvestment, i.e., firms reject investment projects with a positive net present value (NPV) (Myers, 1977). The problem of underinvestment, according to Myers (1977), emerges, because firms with greater risk have not incentives to invest in projects with a positive NPV, since shareholders bear almost all the cost of the project, and only receive a fraction of the increased firm value, a part of which goes to bondholders/creditors.

A higher level of growth contributes to the problem of asset substitution (Jensen and Meckling, 1976), implyinga greater debt cost for firms with high level of growth. In fact, it is easier for managers/shareholders to increase the risk of investment projects, and more difficult for creditors to monitor the changes in risk (Frank and Goyal, 2008).

Agency Theory forecasts a negative relationship between firm growth and debt as a function of underinvestment and agency costs associated with free cash flow (Jensen and Meckling, 1976; Myers, 1977). The agency problems associated with free cash flow are less severe for firms presenting a high level of growth, thus these firms will need less debt to discipline managers' behaviour (Jensen and Meckling, 1976).

Pecking Order Theory suggests a positive relationship between growth and debt, given that debt increases as a function of the insufficiency of the retained profits to fund the firm´s investment opportunities. Furthermore, Myers (1984) suggested that firms with high levels of debt avoid issuing shares as a first source of external financing. Firms create a financial slack, seeking to assure debt capacity to finance their future investment opportunities. This being so, according to this approach, for constant levels of profitability, a higher level of debt is expected in firms with high level of growth, which is supported by the studies of Titman and Wessels (1988), Smith and Watts (1992), Hovakimian,Opler and Titman (2001), Fama and French (2002) and Frank and Goyal (2003).

As in the studies by De Jong, Kabir, and Nguyen (2007), in this study, firm growth is measured by the ratio of the variation of total assets to total assets (Table A1).

Market-to-Book Ratio (MTB)

Hovakimian,Opler and Titman (2001) stated that a significant increase in the shares price is, generally, associated with greater level of growth opportunities, implying a lower debt ratio. In analyzing the relationship between the Market-to-Book (MTB) ratio and debt, Welch (2004) concluded that the volatility of

the shares price originate persistent effects on firms' capital structure, considering that firms do not immediately reflect the variations of the shares price on their capital structure. In turn, Bie and Haan (2004) also analyzed the effects of Market Timing Theory on the capital structure of a sample of German non-financial firms, in the period between 1983 and 1997, and found a negative relationship between share price and debt, concluding that firms issue shares when the share price was seen to increase.

Stein (1996) argued that managers can time the stock market to maximize the current shareholders' wealth. Market Timing Theory has, also, found support in the work of Bake and Wurgler (2002). These last-named authors suggested that a firm´s capital structure is the cumulative result of past attempts by its managers to time the stock market, given that firms issue shares, when they perceive that the shares are overvalued. Manager buy back the shares, when they consider that the shares are undervalued by the market. Baker and Wurgler (2002) related firm debt to the practice of Market Timing in the stock market, using the MTB ratio for that purpose, suggesting this variable as a measure of growth opportunities or a measure of share assessment error analysis, by economic agents intervening in the stock market.

Following Baker and Wurgler (2002), in this study the MTB variable is defined as being the quotient between the market value of total assets and the book value of total assets (Table A1).

Size

Titman and Wessels (1988), adopting the perspective of Static Trade-Off Theory, suggested that the influence of the firm size variable on debt can occur in two ways: i) large firms increase their capacity of debt by following a strategy of diversifying areas of business, allowing them to reduce the volatility of their cash flows, diminishing the risk of bankruptcy; ii) for large firms, the fixed costs of bankruptcy are proportionately inferior than for small firms, contributing to a lowerdebt cost for the former. It should, also, be mentioned that Warner (1977), Ferri and Jones (1979) and Ang,Chua and Macconell (1982) suggested that small firms face greater financial difficulties than large ones, since the latter have a greater capacity for debt, considering their higher credit ratings, thus obtaining lower interest rates on loans. From the perspective of Static Trade-Off Theory, firms with a diversified business portfolio, and a good reputation in credit markets, have lower costs of debt, and as such, this perspective foresees a positive relationship between firm size and debt. Therefore, Static Trade-Off Theory predicts a positive relationship between firm size and debt. This result is obtained in various empirical studies (Rajan and Zingales, 1995; Graham,Lemmon and Schallheim, 1998; Booth,Aivazian, Demirgue-Kunt and Maksimovic, 2001; Hovakimian,Opler and Titman, 2001; Fama and French, 2002; Frank and Goyal, 2003; Korajczyk and Levy, 2003; Antoniou,Guney and Paudyal, 2008).

Nevertheless, according to Pecking Order Theory, the expected sign of the relationship between firm size and debt can present ambiguous results, due to the fact that large firms show a greater preference for external sources of finance, either through recourse to bank debt or through issuing bonds or shares. Large firms make available information about their activities, reducing the problems of information asymmetry with the various agents outside of the firm. Consequently, from the perspective of Pecking Order Theory, the expected sign of the relationship between firm size and debt is not clearly defined. When the firm retained earnings are insufficient, on the one hand, a negative relationship is expected between firm size and debt if large firms choose to issue debt. On the other hand, a positive relationship is expected between those two variables if large firms choose external financing to fund their needs.However, the results of the studies by Kremp,Stöes, and Gerdesmeier (1999) and Ozkan, (2001) are inconclusive about the relationship between firm size and debt.

In accordance with Rajan and Zingales (1995) and Pereira and Ferreira (2011), in this study the firm size variable is measured based on the natural logarithm of firms' turnover (Table A1).

Tax Rate

One of the most important aspects of Static Trade-Off Theory is related to debt tax shields, which depends on two factors: i) the amount of debt used by the firm and ii) the firm's tax rate. Therefore, an increase in the tax rate, with the level of debt remaining constant, implies increased debt tax shields for the firm, suggesting a positive relationship between tax rate and debt. Graham,Lemmon and Schallheim (1998), Graham (1999) and Graham and Harvey (2001) identify a positive relationship between tax rate and debt.

As in Graham, Lemmon and Schallheim (1998), Graham (1999), Graham and Harvey (2001), in this study the tax rate variable is calculated by the ratio of

the difference between the profits before tax and the value of net profits in the period to profits before tax (Table A1).

Risk

Regarding the risk variable, Static Trade-Off Theory suggests that high volatility of net profits increases the risk of the firm not being able to pay off the debt, implying greater financial difficulties. Consequently, higher volatility of net profits implies a lower level of firm debt. Firms with a high volatility of net profits can create "an extra capacity for debt", seeking to protect themselves of the effects of the future variations in profits. According to De Jong,Kabir, and Nguyen (2007), a negative relationship can be expected between risk and firm debt.

As in various studies, Bradley, Jarrell, and Kim (1984), Titman and Wessels (1988), Booth,Aivazian, Demirgue-Kunt, and Maksimovic (2001), Giannetti (2002) and De Jong, Kabir, and Nguyen (2007), here the risk variable is measured by the standard deviation of operational results over total assets (Table A1).

Profitability

Pecking Order Theory suggests a negative relationship between profitability and debt, as the existence of problems of information asymmetry implies selection of sources of finance according to a hierarchical order of preferences: in the first place, firms prefer to resort to internally generated funds rather than external sources of finance, since this implies relatively lower costs. However, when internal financing is insufficient, and the capacity for debt is exhausted, firms issue shares to finance the future investment opportunities (Myers, 1984).

Static Trade-Off Theory assumes a positive relationship between profitability and firm debt, because debt tax shields allow firms with higher levels of profitability to pay less tax on income (Frank and Goyal, 2008).

Agency Theory (Jensen and Meckling, 1976; Easterbrook, 1984; Jensen, 1986) also suggests a positive relationship between profitability and debt, given that firms should have higher levels of debt to discipline their managers' behaviour to alleviate free cash flow problems.

Various empirical studies (Titman and Wessels, 1988; Harris and Raviv, 1991; Smith and Watts, 1992; Rajan and Zingales, 1995; Shyam-Sunder and Myers, 1999; Booth,Aivazian, Demirgue-Kunt and Maksimovic, 2001; Baker and Wurgler, 2002; Frank and Goyal, 2003; Korajczyk and Levy, 2003; Antoniou,Guney, and Paudyal, 2008) identify a negative relationship between profitability and firm debt. This result is consistent with Pecking Order Theory, and inconsistent with Static Trade-Off Theory and Agency Theory. However, Fama and French (2002) obtain a positive, and statistically significant, relationship between profitability and debt, supporting the principles of Static Trade-Off and Agency Theories.

Similarly to the studies by Titman and Wessels (1998), Rajan and Zingales (1995), Baker and Wurgler (2002), and Pereira and Ferreira (2011), in this study profitability is measured based on the ratio of operational cash flow to total assets (Table A1).

Financial Flexibility

According to Pecking Order Theory, firms can create a financial slack to implement investment projects with a positive NPV, without issuing debt or shares, and therefore, this theoretical perspective suggests there should be a negative relationship between financial flexibility and debt. In turn, Static Trade-Off Theory suggests no relationship between these two variables, since firms do not need to maintain any excess of financial funds to manage their operational cycle (Myers and Majluf, 1984).

Following the study by Ferreira and Vilela (2004), in this study the proxy of financial flexibility corresponds to the ratio of cash value and cash equivalents to total current assets (Table A1).

Liquidity

According to Ozkan (2001) the effect of liquidity on debt is ambiguous. On the one hand, firms, with high levels of liquidity, can have higher levels of debt due to the greater ability to fulfill their short-term commitments with creditors, within the respective dates (Ozkan, 2001). Therefore, a positive relationship is forecast between liquidity levels and debt. On the other hand, firms with higher levels of liquidity can use the corresponding assets to finance their investment. This financing behaviour is in agreement with the principles of Pecking Order Theory, and consequently a negative relationship is expected between liquidity and debt (Ozkan, 2001). Liu and Ren (2009) for Chinese listed firms, Eriotos,Dimitrios and Zoe (2007) for Greek listed firms identify a negative relationship between liquidity and debt. As in the study by Ozkan (2001) and De Jong, Kabir, and Nguyen (2007), we consider the ratio of current assets to current liabilities as a proxy of the liquidity variable

(Table A1).

Target Debt Ratio and Speed of Adjustment

According to Dynamic Trade-Off Theory firms adjust the current level of debt towards the target debt ratio. Therefore, firms that have a high level of current debt reduce their debt ratio, in the subsequent periods. Firms that verify low level of current debt increase their debt ratio, in subsequent periods. Furthermore, this theoretical perspective suggests that the costs of adjustment influence the speed of adjustment of the current level of debt towards the target debt ratio (Frank and Goyal, 2008). Various empirical studies show disagreement regarding the speed of adjustment of current debt towards the target debt ratio. Fama and French (2002) conclude that the speed of adjustment is between 17% and 10% for US firms that distribute dividends, and between 15% and 18% for firms that do not. Nevertheless, the results obtained by Leary and Roberts (2005) and Alti (2006) show that US firms adjust quickly the current debt ratio towards the target debt ratio. Leary and Roberts (2005) conclude that transaction costs are potentially important in explaining the firms' capital structure decisions and they can imply different patterns of variation in firms' levels of debt. Antoniou,Guney, and Paudyal (2008), in their study regarding G5 countries (France, Germany, Japan – bank oriented economies; United Kingdom and U.S - capital market oriented economies) conclude that the speeds of adjustment towards the target debt ratio, aside from the firm -specific factors, are influenced by the economic and institutional factors. Corroborating these results, Oztekin and Flannery (2012) in their international study, in 37 countries, conclude that adjustment speeds vary considerably with international differences in financial system features.

Methodology

Database

This study uses the AMADEUS database, obtaining a total of 750 firms, using as criteria[1] very large firms and large firms; national firms; non-financial firms; and listed firms.

Similarly to the procedure used by De Jong, Kabir, and Nguyen (2007), firstly, firms present in the sample were required to have data available for at least 3 years in the period of analysis.

Secondly, alternative sources were used to collect data lacking in the AMADEUS database, namely resorting to accounting reports for the firms studied. Therefore, in this stage of the process of defining the sample, we eliminate firms, for which information was not available about all the variables, regarding the specific factors considered as determinants of firms 'capital structure, for the period of analysis between 1996 and 2007.The second stage for obtaining the research sample, was begun with a total of 750 listed firms from 8 countries and, due to the lack of data for some variables, 91 firms were eliminated. The final sample is composed by 659 firms, which according to their nationality, are divided up as follows: 92 German, 78 Spanish, 95 French, 91 Italian, 76 Dutch, 45 Portuguese, 91 British and 91 U.S..

Estimation Methods

Static panel models do not allow analysis of the possible dynamics existing in firms' capital structure decisions. Seeking to test Dynamic Trade-Off Theory, it becomes necessary to consider that firms define a target debt ratio.

Marsh (1982) and Jalilvand and Harris (1984) suggested that determining the target level of debt should be based on the average of historical values of debt. However, for Shyam-Sunder and Myers (1999), this methodology has two limitations, as firstly it becomes necessary to use a database with a significant number of periods, and secondly, it is difficult to justify that target level of debt remains constant over a significant number of successive periods. Shyam-Sunder and Myers (1999) suggest that target debt ratio depends on firms' specific characteristics. Similarly to the studies made by Shyam-Sunder and Myers (1999), De Miguel and Pindado (2001), Ozkan (2001), Fama and French (2002) and Gaud,Jani, Hoesli and Bender (2005), in the current study, we consider the target debt ratio as depending on the firm's specific characteristics.

Determination of the target debt ratio, $LEV_{i,t}^{*}$, is based on the model of partial adjustment, and it is a linear function of the various determinants $X_{i,t,}$ and of the error term, $\varepsilon_{i,t}$, expressed as follows:

[1]On Amadeus database, firms are considered to be very large when they match at least one of the following conditions: Operating Revenue>= 100 million EUR (130 million USD); Total assets >= 200 million EUR (260 million USD); Employees>=1,000; Firms on Amadeus are considered to be large when they match at least one of the following conditions: Operating Revenue >= 10 million EUR (13 million USD); Total assets >= 20 million EUR (26 million USD); Employees >= 150.

$$LEV_{i,t}^{*} = X_{i,t}\kappa + \varepsilon_{i,t} \text{with} = 1, \dots, N\,;\, t = 1, \dots, T \quad (1)$$

where:$LEV_{i,t}^{*}$ = target debt ratio.

Nevertheless, the imperfections of the capital market, namely the existence of transaction costs, restrain firms, in obtaining a complete adjustment of debt from one period to the next. These costs, which can be originated by frictions in the capital market and random events, constrain firms in their adjustment of the current debt ratio towards the target debt ratio. Consequently, $LEV_{i,t}^{*}$ is not directly observable due to the presence of transaction costs, and so economic agents can only observe the current value of debt ($LEV_{i,t}$).The relationship between $LEV_{i,t}^{*}$ and $LEV_{i,t}$ can be expressed as follows:

$$LEV_{i,t} - LEV_{i,t-1} = \alpha\left(LEV_{i,t}^{*} - LEV_{i,t-1}\right) \quad (2)$$

where:$LEV_{i,t}$ = current level of debt in period *t*; $LEV_{i,t-1}$ = current level of debt in period *t-1*;α = adjustment of current level of debt towards the target debt ratio.

According to the above equation, alteration to the current level of debt is a fraction α of the target debt ratio for that same period, and the value of α is proportional to firms' capacity to adjust their current level of debt towards their target debt ratio.Solving equation (2) to the order of $LEV_{i,t}$, the present level of debt can be defined as follows:

$$LEV_{i,t} = (1-\alpha)LEV_{i,t-1} + \alpha LEV_{i,t}^{*} \quad (3)$$

The adjustment coefficient α varies between zero and one $(0 \le \alpha \le 1)$, i.e., α refers to the coefficient that allows the assessment of transaction costs. If $\alpha = 1$, this implies $LEV_{i,t} = LEV_{i,t}^{*}$, indicating that firms present nil transaction costs, and there is a complete adjustment of the current level of debt towards the target debt ratio. Consequently, the assumptions of Dynamic Trade-Off Theory are corroborated, given that the adjustment of debt is complete, and the firm reaches the target debt ratio. If $\alpha = 0$, we have $LEV_{i,t} = LEV_{i,t-1}$, suggesting that transaction costs do not allow firms to adjust their current level of debt towards target debt ratio, and so the current level of debt is equal to that of the previous period. The lower the value of α, the higher the transaction costs borne by the firm, since those costs restrain the firm in the adjustment of current level of debt towards the target debt ratio.

Substituting equation (1) in equation (3), the following equation is obtained:

$$LEV_{i,t} = (1-\alpha)LEV_{i,t-1} + \alpha X_{i,t}\kappa + \alpha\varepsilon_{i,t} \quad (4)$$

Considering, $\gamma = (1-\alpha)$, $\beta = \alpha\kappa$ e $\mu_{i,t} = \alpha\varepsilon_{i,t}$ the equation can be rewritten,

$$LEV_{i,t} = \gamma LEV_{i,t-1} + X_{i,t}\beta + \mu_{i,t} \quad (5)$$

The presence of a lagged variable as a regressive variable can create problems of autocorrelation, given that $LEV_{i,t}$ is a function of υ_i, and $LEV_{i,t-1}$ is also a function of υ_i, and consequently the estimators obtained can be biased and inconsistent. Thus, seeking to get over these difficulties and estimate the equation (1) this study used the following estimator GMM *System* (1998) by Blundell and Bond (1998) and LSDVC (2005) by Bruno (2005)[2].

Blundell and Bond (1998) conclude that when the dependent variable is persistent, and the number of periods is not very high, the GMM (1991) estimator is inefficient. In these circumstances, Blundell and Bond (1998) extend the GMM (1991) estimator, considering a system with variables at level and in first differences. Therefore, for the variables at level, the instruments are presented in first differences, and for the variables in first differences the instruments are presented at level. However, we do not use the GMM (1991) estimator in first differences because may imply biased estimations.

To test the validity of instruments we use the Hansen test. The null hypothesis indicates the restrictions imposed by use of the instruments are valid, indicating the alternative hypothesis that the restrictions are not valid. By rejecting the null hypothesis, we conclude that the estimators are not robust.

We test for the existence of first and second-order autocorrelation. The null hypothesis is that there is no autocorrelation, the alternative hypothesis being the existence of autocorrelation. By rejecting the null hypothesis of non-existence of second-order autocorrelation, we conclude that the estimators are not robust.

The Least Square Dummy Variable Corrected (LSDVC) dynamic estimator by Bruno (2005) is used to assess the robustness of the results. The LSDVC[2] dynamic estimator proposed by Bruno (2005) was used with the aim of lessening possible bias obtained with estimations of the GMM System (1998) dynamic estimator.

Results

Descriptive Statistics and Correlation Matrix

The results of the descriptive statistics are presented in Table 1.

[2]Use of the LSDVC (2005) dynamic estimator is advisable up to 30 cross-sections as a means of testing the robustness of results obtained with the GMM system (1998) estimator.

TABLE 1 DESCRIPTIVE STATISTICS OF THE FIRM´S SPECIFIC FACTORS DETERMINANTS

Country	*LEV*	*TANG*	*INTANG*	*GA*	*SIZES*	*TAX*	*RIS*	*ROA*	*FLEX*	*LIQ*	*MTB*	Obs.
Germany (GE)	0.66	0.29	0.11	0.13	14.90	0.34	0.18	0.15	0.14	2.72	1.34	798
	(0.14)	(0.17)	(0.13)	(0.35)	(1.70)	(0.52)	(2.47)	(0.48)	(0.12)	(3.41)	(1.19)	
Spain	0.61	0.37	0.07	1.19	14.00	0.40	0.24	0.12	0.18	1.36	1.76	844
(SP)	(0.17)	(0.22)	(0.09)	(25.81)	(2.52)	(1.04)	(2.79)	(0.08)	(0.16)	(2.30)	(1.76)	
France	0.71	0.25	0.19	0.17	15.45	0.33	0.04	0.11	0.23	1.24	1.49	991
(FR)	(0.15)	(0.16)	(0.14)	(0.54)	(1.43)	(1.14)	(0.07)	(0.05)	(0.13)	(0.47)	(0.99)	
Italy	0.65	0.28	0.16	0.17	13.83	-3.35	0.05	0.11	0.22	1.41	2.08	597
(IT)	(0.16)	(0.20)	(0.16)	(1.44)	(1.44)	(54.10)	(0.05)	(0.07)	(0.16)	(0.66)	(7.75)	
Netherlands	0.62	0.26	0.13	0.25	13.79	0.26	0.18	0.13	0.18	1.67	1.75	756
(NL)	(0.18)	(0.18)	(0.17)	(1.54)	(1.63)	(2.58)	(1.62)	(0.10)	(0.18)	(1.23)	(1.32)	
Portugal	0.69	0.34	0.18	0.20	12.36	0.30	0.11	0.09	0.10	1.06	1.31	403
(PT)	(0.17)	(0.19)	(0.18)	(0.42)	(1.79)	(2.09)	(1.03)	(0.07)	(0.10)	(0.52)	(1.01)	
U. Kingdom	0.65	0.33	0.16	0.22	14.96	0.28	0.07	0.13	0.18	1.31	2.91	814
(UK)	(0.17)	(0.23)	(0.17)	(1.57)	(1.08)	(0.63)	(0.13)	(0.10)	(0.16)	(0.70)	(8.34)	
U.S.America	0.60	0.35	0.15	0.21	16.64	0.32	0.10	0.15	0.20	1.42	2.28	777
(US)	(0.19)	(0.24)	(0.16)	(0.53)	(1.19)	(0.54)	(0.20)	(0.18)	(0.16)	(1.03)	(1.51)	

The volatilities of the variables of debt, asset tangibility, firm size, profitability[3], financial flexibility[4], liquidity[5]and MTB ratio[6]are not to very high for the majority of European and U.S. firms, since the respective standard deviations are below the respective means. However, for the variables of intangible assets[7], firm growth, tax rate and risk high volatility is observed, as the respective standard deviations are above the respective means.

It is also of note that debt presents the lowest average value in U.S. firms (0.6), and the highest average value in French firms (0.71).

Regarding the correlations between the variables studied, for Aivazian, Ge and Qiu (2005), when correlation coefficients between explanatory variables are not over 30%, the problem of endogeneity is not particularly relevant. In this study, only a few relationships are found to have values over 30%. However, these correlations, despite being over 30%, are not significantly high, and so the problem of endogeneity between explanatory variables will not be particularly relevant in this study.[8]

Dynamic Panel Models

Table 2 presents the results obtained from applying the GMM System (1998) dynamic estimator. The results of the Hansen test indicate that we cannot reject the null hypothesis of validity of the instruments used.

The second-order autocorrelation test, for the GMM System (1998) dynamic estimator, except to United States, indicates that we cannot reject the null hypothesis of absence of autocorrelation.Except to United States, based on the validity of the instruments used and the absence of second-order autocorrelation, we can conclude that the results of the GMM System (1998) dynamic estimator are robust and open to interpretation. Bruno (2005) warns that using the GMM System (1998) estimator can lead to biased parameters. Therefore, we test robustness of the results using the estimator proposed by Bruno (2005), the LSDVC (2005), to estimate aconvergence regression of corrected fixed effects, which allows for correction of what is estimated with the GMM System (1998) estimator. The LSDVC (2005) results are presented in Table 3.

We can state that the results obtained with the GMM System (1998) and LSDVC (2005) estimators are not similar regarding sign, magnitude and statistical significance of the estimated parameters. Therefore, we will take as a reference the results obtained with the GMM System (1998) and LSDVC (2005) estimators. The existence of second-order autocorrelation, with the GMM System (1998) estimator, regarding the estimations obtained for U.S. firms, implies that

[3] The profitability variable presents high volatility for German and US firms, since standard deviations are above the respective means observed.

[4]The financial flexibility variable presents high volatility for Portuguese firms, since the standard deviation is above the respective mean.

[5]The liquidity variable presents high volatility for German firms, since the respective standard deviations are above the respective means observed.

[6]The MTB ratio shows high volatility for Italian and British firms, since the mean observed is below the respective standard deviations.

[7]Volatility of the intangible assets variable is not particularly high for French and Portuguese firms, since the respective standard deviations are below the respective means observed.

[8]Correlation matrixes are not presented but can be requested from the authors.

interpretation of the results obtained should be based on the estimations obtained with the LSDVC (2005) dynamic estimator. For European firms, we interpret the results obtained based on the GMM System (1998) estimator, since absence of second-order autocorrelation is confirmed. From application of the GMM System (1998) estimator, it is identified a positive and statistically significant relationship between asset tangibility and debt in Dutch firms. For the firms of the remaining countries, the relationship between those two variables is not statistically significant. The results obtained with the GMM System (1998) estimator show a negative and statistically significant relationship between intangible assets and debt in Portuguese and British firms. Based on the LSDVC (2005) estimator, it is identified a negative and statistically significant relationship between intangible assets and debt in U.S. firms. The results obtained on the basis of the GMM System (1998) dynamic estimator, indicate a positive and statistically significant relationship between firm growth and debt in German, Spanish, French and Italian firms.

TABLE 2 DYNAMIC ESTIMATOR GMMSYSTEM (1998)

	LEV	*TANG*	*INTANG*	*GA*	*SIZES*	*TAX*	*RIS*	*ROA*	*FLEX*	*LIQ*	*MTB*	Obs	*F*	*Hansen*	m_1 m_2
GE	0.568[a]	0.058	0.023	0.058[a]	-0.012[c]	0.007[c]	-0.001	-0.021[a]	-0.189[a]	-0.004[a]	-0.002	647	31.2[a]	77.9	4.22[a]
	(0.045)	(0.051)	(0.043)	(0.010)	(0.007)	(0.004)	(0.001)	(0.043)	(0.039)	(0.001)	(0.002)				-1.13
SP	0.614[a]	-0.021	0.077[b]	0.011[a]	0.007[c]	0.003	0.001	-0.424[a]	0.061[b]	-0.059[a]	0.001	696	64.6[a]	65.9	4.48[a]
	(0.03)	(0.037)	(0.045)	(0.004)	(0.004)	(0.002)	(0.001)	(0.073)	(0.030)	(0.010)	(0.002)				-1.05
FR	0.799[a]	-0.112	-0.110[c]	0.037[b]	0.011	0.002	0.008	-0.424[a]	0.031	-0.043[a]	0.008	829	37.3[a]	80.9	5.11[a]
	(0.067)	(0.069)	(0.057)	(0.008)	(0.008)	(0.002)	(0.042)	(0.109)	(0.043)	(0.015)	(0.007)				0.88
IT	0.414[a]	0.104	0.139	0.029[b]	-0.004	-0.000	-0.560	-0.339[a]	-0.106	-0.039[b]	0.002[a]	501	15.3[a]	81.8	3.20[a]
	(0.105)	(0.094)	(0.068)	(0.012)	(0.011)	(0.002)	(0.359)	(0.102)	(0.066)	(0.017)	(0.001)				-0.27
NL	0.469[a]	0.182[a]	0.097	0.015	0.021[c]	-0.001[a]	0.016	-0.359[a]	-0.097[c]	-0.017[c]	0.024[a]	657	24.4[a]	59.9	4.75[a]
	(0.059)	(0.066)	(0.079)	(0.010)	(0.012)	(0.000)	(0.105)	(0.077)	(0.053)	(0.010)	(0.007)				-0.38
PT	0.360[a]	-0.176	-0.368[b]	-0.011	0.003	0.001	0.006[a]	-0.714[a]	0.141	-0.129[a]	0.040	285	21.9[a]	15.9	2.46[a]
	(0.085)	(0.174)	(0.155)	(0.027)	(0.013)	(0.001)	(0.002)	(0.191)	(0.119)	(0.029)	(0.026)				-1.03
UK	0.255[a]	-0.130	-0.354[a]	-0.009[a]	0.000	0.099[a]	0.288[a]	-0.101[b]	-0.055	-0.040	0.000	614	12.5[a]	81.5	3.99[a]
	(0.051)	(0.139)	(0.100)	(0.002)	(0.005)	(0.005)	(0.078)	(0.048)	(0.044)	(0.028)	(0.006)				-1.13
US	0.193[a]	-0.092	-0.240[a]	0.021[a]	0.031[a]	-0.002	0.249[a]	-0.102[a]	-0.106[a]	-0.037[a]	-0.007[b]	543	20.5[a]	79.6	2.78[a]
	(0.032)	(0.064)	(0.053)	(0.004)	(0.009)	(0.004)	(0.058)	(0.018)	(0.037)	(0.009)	(0.003)				2.1[b]

Notes: a) The Instruments are:$\left(LEV_{i,t-2}, \sum_{k=1}^{n} \Delta X_{ki,t}\right)$ for the equations in first differences; $\left(\Delta LEV_{i,t-1}, \sum_{k=1}^{n} X_{ki,t}\right)$ for equations in level. b)The test F has normal distribution N (0,1) and it tests the null hypothesis of non-significance as a whole of the parameters of the explanatory variables, against the null hypothesis of correlation between non-observable individual effects and the explanatory variables. c)The Hansen test has N(0,1) distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. d) The m1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. e) The m2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation, against the alternative hypothesis of existence of second order autocorrelation. f) Standard deviations in brackets. g) a. significant at 10% level; b significant at 5% level;. c significant at 1% level; h) Estimations include time dummy variables.

TABLE 3 DYNAMIC ESTIMATOR LSDVC [GMM System (1998)]

	LEV	*TANG*	*INTANG*	*GA*	*SIZES*	*TAX*	*RIS*	*ROA*	*FLEX*	*LIQ*	*MTB*	Obs.
GE	0.620[a]	0.066	0.033	0.052[a]	0.005	0.006	0.001	-0.206[a]	-0.107[a]	-0.004[a]	-0.005[c]	673
	(0.045)	(0.050)	(0.050)	(0.040)	(0.009)	(0.006)	(0.001)	(0.047)	(0.036)	(0.001)	(0.003)	
SP	0.656[a]	-0.019	0.054	0.016[a]	0.002	0.001	0.000	-0.327[a]	-0.003	-0.048[a]	-0.004[c]	696
	(0.036)	(0.033)	(0.044)	(0.005)	(0.005)	(0.002)	(0.001)	(0.08)	(0.094)	(0.009)	(0.002)	
FR	0.774[a]	-0.096[a]	-0.060[c]	0.033[a]	0.021[b]	0.001	0.154[c]	-0.320[a]	0.034	-0.031[a]	0.005[c]	829
	(0.036)	(0.036)	(0.033)	(0.004)	(0.009)	(0.002)	(0.085)	(0.063)	(0.027)	(0.008)	(0.003)	
IT	0.534[a]	0.001	-0.100[c]	0.028[a]	0.010	-0.001	-0.980[a]	-0.359[a]	-0.114[a]	-0.039[a]	0.002[b]	536
	(0.044)	(0.047)	(0.057)	(0.005)	(0.008)	(0.028	(0.245)	(0.085)	(0.032)	(0.009)	(0.000)	
NL	0.473[a]	0.014	0.008	0.011[c]	0.016	-0.001	0.049	-0.398[a]	-0.127[a]	-0.019[a]	0.023[a]	657
	(0.036)	(0.054)	(0.044)	(0.006)	(0.012)	(0.001)	(0.073)	(0.0423)	(0.039)	(0.004)	(0.004)	
PT	0.443[a]	-0.173	-0.131	-0.021	-0.001	-0.001	-0.004	-0.596[a]	0.062	-0.130[a]	0.050[a]	285
	(0.051)	(0.116)	(0.096)	(0.019)	(0.026)	(0.002)	(0.006)	(0.134)	(0.078)	(0.018)	(0.017)	
UK	0.445[a]	-0.135[b]	-0.168[a]	-0.010[a]	0.061[a]	-0.000	0.241[a]	-0.193[a]	-0.049[c]	-0.045[a]	0.001[b]	704
	(0.036)	(0.060)	(0.047)	(0.002)	(0.010)	(0.004)	(0.053)	(0.048)	(0.026)	(0.012)	(0.005)	
US	0.454[a]	-0.017	-0.169[a]	0.021[a]	0.021[a]	-0.006	0.094	-0.127[a]	-0.132[a]	-0.025[a]	-0.001	637
	(0.030)	(0.031)	(0.039)	(0.005)	(0.007)	(0.005)	(0.061)	(0.020)	(0.032)	(0.007)	(0.003)	

Notes:a) significant at 10% level; b) significant at 5% level; c) significant at 1% level; d) Estimations include time dummy variables.

In addition, we identify a negative and statistically significant relationship between firm growth and debt in British firms. However, we do not find a statistically significant relationship between firm growth and debt in Dutch and Portuguese firms. According to the results of the LSDVC (2005) estimator, there isa positive and statistically significant relationship between growth and debt in U.S. firms.

Applying the GMM System (1998) estimator, we find a positive and statistically significant relationship between size and debt in German, Spanish and Dutch firms. Based on the application of the LSDVC (2005) estimator, we identify a positive and statistically significant relationship between size and debt in U.S. firms.

The results obtained with the GMM System (1998) estimator indicate a negative and statistically significant relationship between tax rate and debt in Dutch firms. Moreover, the results show a positive and statistically significant relationship between those two variables, for British and German firms. However, the relationship between tax rate and debt is not statistically significant for Spanish, French, Italian, Portuguese and U.S. firms.

The results obtained with the GMM System (1998) estimator indicate a positive and statistically significant relationship between risk and debt in Portuguese and British firms. However, for the firms in the remaining countries, the relationship between risk and debt is not statistically significant.

The results in Table 2 show a negative and statistically relationship between profitability and debt in all European firms. On the basis of the application of the LSDVC (2005) estimator, we identify a negative and statistically significant relationship between profitability and debt in U.S. firms (Table 3).

Concerning the relationship between financial flexibility and debt, application of the GMM System (1998) estimator identified a negative and statistically significant relationship for German, Spanish and Dutch firms (Table 2). The results obtained with the LSDVC (2005) estimator show a negative and statistically relationship between financial flexibility and debt in U.S. firms (Table 3).

Analysis of the results of the GMM System (1998) estimator, also, suggests a negative and statistically significant relationship between liquidity and debt in German, Spanish, French, Italian and Portuguese firms (Table 2). Application of the LSDVC (2005) estimator identifies a negative and statistically significant relationship between liquidity and debt in U.S. firms (Table 3).

The results of the GMM System (1998) estimator and the LSDVC (2005) estimator allow us to conclude that the relationship between the MTB ratio and debt is not statistically significant for European and U.S. firms.

The results obtained from applying theGMM System (1998) estimator and the LSDVC (2005) estimator indicate that the coefficient measuring the impact of debt of the previous period on debt of the current period is positive and statistically significant, for German, Spanish, French, Italian, Dutch, Portuguese and British firms (Table 2). The results of the LSDVC (2005) estimator show that U.S. firms adjust their current debt ratio towards target debt ratio (Table 3).

The coefficient of adjustment of current level of debt towards target debt ratio varies between 0.201 in French firms and 0.745 in British firms. It is of note that the adjustment coefficient of French firms is relatively low, which can be justified by the high transaction costs borne by these firms. In turn, the adjustment coefficient of British firms is comparatively the highest. This result suggests that British firms bear lower transaction costs than the firms of the other European and US countries. These results are different from those ones obtained by Antoniou, Guney, and Paudyal (2008) and Oztekin and Flannery (2012), which have considered institutional and economic factors as possible determinants of firms' capital structure decisions. Therefore, the differences regarding the speeds of adjustment identified in those studies and the results obtained for the current study are probably due to the fact that the current study does not consider the institutional factors that may contribute to different speeds of adjustment towards the firm´s target debt ratios.

Discussion of the Results

We now analyze the results obtained concerning the relationship between firms' specific factors and the level of debt in European and U.S. firms, in the light of Static Trade-Off, Pecking Order, Market Timing and Dynamic Trade-Off Theories.

The results obtained allow us to conclude that firm growth is a determinant with a positive influence on debt in German, French and Italian firms. However, in British firms, that relationship is negative and statistically significant. In addition, firm growth has a positive and significant influence on debt in U.S. firms.

These results suggest that some European and U.S. firms use debt to fund their needs associated with their growth.

Those results contradict the principles of Static Trade-Off Theory and those of Agency Theory, according to which firms with greater growth opportunities present greater risk, which increases the likelihood of bankruptcy and increases agency costs, therefore justifying a lower level of debt. However, that positive relationship between growth and debt is in accordance with Pecking Order Theory, which forecasts that firms will turn to debt to finance their growth, when they do not have sufficient internal funding. Therefore, the results suggest that some European firms, belonging to countries with a bank-based financial system (e.g. Germany, Spain and Italy), resort to debt to finance their growth, when retained profits are insufficient.

In the United Kingdom, a country with a financial system based on the capital market, firms seem to adopt a financing behaviour contradicting the forecasts of Pecking Order Theory. Those firms do not appear to issue debt, possibly preferring to issue shares to finance their growth. On the contrary, firms in the U.S., a country with a financial system also based on the capital market, seem to adopt a financing behavior, which agrees with Pecking Order Theory. In fact, the results suggest that those firms prefer to issue debt than to issue shares to fund their growth, when internal funding is insufficient.

The relationship between profitability and debt is negative and statistically significant for all European and U.S. firms, suggesting that these firms follow Pecking Order Theory in their capital structure decisions. These results suggest that internal financing is preferred by firms, whatever the countries' financial system. These results are in agreement with Frank and Goyal (2003), who concluded that large U.S. firms follow Pecking Order Theory, because they have a greater capacity to generate profits, avoiding the recourse to external financing to satisfy needs not met by retained profits. Also, Antoniou, Guney, and Paudyal (2008) identify a negative relationship between profitability and debt for all countries analyzed. These authors verify that France is the country, where profitability has a higher negative impact on debt. This is justified on the basis of the aversion of the French owners in losing firm´s control and independence, problems of asymmetric information, weaker protection of the creditors. These factors may explain the preference of firms for internal finance, and firms follow a hierarchy in selecting the firm´ finance sources, in accordance with Pecking Order Theory.

The determinant factor regarding financial flexibility has also a negative and significant relationship with debt in the case of German, Dutch and U.S. firms. This negative relationship suggests that firms with greater financial flexibility create a financial slack seeking to have a debt capacity to fund their future growth. This financing strategy is in agreement with Pecking Order Theory, according to which firms create a financial slack, so as to have the capacity to fund future investment projects (DeAngelo,Harry, Linda and Whited, 2011).

Furthermore, the determinant factor of liquidity has a negative and significant relationship with debt in all European and U.S. firms. These results suggest that European and U.S. listed firms, with greater liquidity, carry out their investment through their internal financial resources, requiring lower levels of debt. These results are in accordance with the predictions of Pecking Order Theory.

The relationship between the MTB ratio and debt is positive and statistically significant for Italian and Dutch firms. Therefore, these firms seem to adopt a financing strategy, which goes against the principles of Market Timing Theory. In fact, those firms with greater levels of MTB ratio have superior levels of debt, suggesting that firms with high level of growth opportunities issue debt, instead to issue shares to fund their needs. The relationship between the MTB ratio and the level of debt suggest that listed Italian and Dutch firms follow the assumptions of the Pecking Order Theory, in their capital structure decisions.

Nevertheless, for firms in the other countries analyzed, the relationship between the MTB ratio and the level of debt is not statistically significant. In this study, the results obtained for the relationship between the MTB ratio and debt, suggest that Market Timing Theory is not followed by European and U.S. listed firms in their capital structure decisions.

Regarding Dynamic Trade-Off Theory, we verify that Portuguese, British, U.S., Dutch and Italian firms are the ones with greater adjustment of current debt ratio towards the target debt ratio. Therefore, these firms seem to bear lower transaction costs, making a quicker adjustment of their current level of debt towards their target debt ratios.

Spanish, German and French firms show less

adjustment of current level of debt towards the target debt ratio, probably due to the higher transaction costs, which those firms incur with the financial transactions. Therefore, for the firms in France, Germany, and Spain, the costs of financial imbalance appear to be lower than the transaction costs. The results regarding the speeds of adjustment obtained in the current study differ from the results of Antoniou,Guney, and Paudyal (2008) and Oztekin and Flannery (2012). Antoniou,Guney, and Paudyal (2008) conclude that the speeds of adjustment towards the target debt ratio, aside from the firm-specific factors, are influenced by the economic and institutional factors. Oztekin and Flannery (2012) study the behavior of firms in 37 countries regarding the target debt ratio and the adjustment speeds. These authors conclude that country's legal and financial institutions significantly affect the adjustment speeds, which varies with international differences in important financial system features.

Conclusion

The objective of this study is to analyze the influence of firms' specific factors on capital structure, seeking to verify if Static Trade-Off, Dynamic Trade-Off, Agency, Pecking Order and Market Timing Theories are not mutually exclusive, in explaining the capital structure decisions of European and U.S. listed firms. To reach this objective, data were collected for the period between 1996 and 2007, for a sample of 659 firms located in different European countries and the U.S.: 92 firms located in Germany, 78 in Spain, 95 in France, 91 in Italy, 76 in the Netherlands, 45 in Portugal, and 91 in the United Kingdom and 91 in the United States.

As estimation methods, we use panel data estimators, namely the GMM System (1998) and LSDVC (2005) dynamic estimators.

The results show that theories on capital structure decisions, namely Agency, Static Trade-Off, Pecking Order and Dynamic Trade-Off Theories, are complementary in explaining the financing behaviour of European and U.S. listed firms.

Pecking Order Theory seems to be followed by European and U.S. listed firms, considering the negative relationship between profitability and debt, and the negative relationship between liquidity and debt. However, firms also follow Dynamic Trade-Off Theory, seeking to adjust the current level of debt towards the target debt ratio, albeit with different levels of adjustment, reflecting differences in transaction costs borne by the firms in the different countries. The fact that Britain and the U.S. have a financial system based on the capital market does not seem to have repercussions for firms' capital structure decisions, since the results suggest that firms in both countries prefer internal to external financing. This preference for internal financing is also found in European firms belonging to countries with a bank-based financial system. In addition, British and U.S. firms present relatively quick adjustment of current debt ratio towards target debt ratio. These results suggest that British and U.S. listed firms bear lower transaction costs in comparison with the firms of the remaining countries.

In general, the results show that theories on capital structure decisions, namely Agency, Static Trade-Off, Pecking Order and Dynamic Trade- Off Theories, are complementary in explaining the financing behaviour of European and U.S. listed firms.

As limitations of this study, we can mention the absence of variables relating to countries' specific factors which can contribute to determining the capital structure of European and U.S. firms. For future research, we suggest the inclusion of the variables regarding the countries' specific factors which together with the variables of firms' specific factors could contribute to deepening knowledge on the subject of capital structure decisions.

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ZéliaSerrasqueiro, PhD in Management, is Associate Professor in the Department of Management and Economics of Beira Interior University and Researcher in CEFAGE-UBI (Center for Advanced Studies in Management and Economics). She is the author of articles in various journals: Journal of Business Economics and Management, Entrepreneurship Theory & Practice, Research Policy, Journal of Evolutionary Economics, Small Business Economics, Industrial and Corporate Change, Journal of Business Research, Journal of Service Management, The Services Industries Journal, Management Research Review, Social Responsibility Journal, Review of Accounting and Finance, and other journals.

MárciaRogão is PhD in Economics. She is Professor in Instituto Politécnico Bragança, Portugal.

Paulo MaçãsNunes isPhD in Economics, is Associate Professor in the Department of Management and Economics

of Beira Interior University and Researcher in CEFAGE-UBI (Center for Advanced Studies in Management and Economics). He is the author of articles in various journals: Journal of Business Economics and Management, Entrepreneurship Theory & Practice, Research Policy, Journal of Evolutionary Economics, Small Business Economics, Industrial and Corporate Change, Journal of Business Research, Journal of Service Management, The Services Industries Journal, and other journals.

Appendix A

TABLE A1 DEFINITION OF FIRM-SPECIFIC FACTORS

Variable	Designation	Definition
Debt	LEV	$\frac{\text{Total Net Assets} - \text{Equity}}{\text{Total Net Assets}}$
Asset Tangibility	TANG	$\frac{\text{Tangible Assets}}{\text{Total Net Assets}}$
Asset Tangibility	INTANG	$\frac{\text{Intangibility Assets}}{\text{Total Net Assets}}$
Growth	GA	$\frac{\text{otal Net TAssets}_t - \text{Net Total Assets}_{t-1}}{\text{Total Net Assets}}$
Size	SIZES	ln(Turnover)
Tax rate	TAX	$\frac{\text{Earnings before taxes} - \text{Net earnings}}{\text{Earnings before taxes}}$
Risk	RIS	$\frac{\text{Standard deviation of earnings}}{\text{Total Net Assets}}$
Profitability	ROA	$\frac{\text{Operational cash flow}}{\text{Total Net Assets}}$
Financial flexibility	FLEX	$\frac{\text{Cash value and cash equivalents}}{\text{Current Assets}}$
Liquidity	LIQ	$\frac{\text{Current Assets}}{\text{Current liabilities}}$
Market-to-Book Ratio	MTB	$\frac{\text{Market value of Total Assets}}{\text{Book value of Total Assets}}$